

Supplementary Material

The Brain Unplugged: A Wireless Multi-Channel Neural Amplifier for Freely Moving Animals

Tobi A Szuts, Vitaliy Fadeyev, Sergei Kachiguine, Alexander Sher, Matthew V Grivich, Margarida Agrochão, Pawel Hottowy, Wladyslaw Dabrowski, Evgueniy V Lubenov, Athanassios G Siapas, Naoshige Uchida, Alan M Litke, Markus Meister

Supplementray Table 1: Technical comparison to previously reported wireless systems. Specifications left blank indicate that no value was reported. Mass refers to the complete electronic system and excludes the electrode drive. The mass of the Miranda 2010 system is inferred based on a precursor model in the same physical package³². System noise is calculated over the frequency range indicated.

<i>System</i>	<i>Channel count</i>	<i>Mass (g)</i>	<i>Noise amplitude (μV RMS)</i>	<i>Noise passband (Hz)</i>	<i>Range (m)</i>	<i>Power (mW)</i>	<i>Power/ch (mW/ch)</i>	<i>Battery life (h)</i>	<i>Target animal</i>
Szuts 2010	64	52	3.6	80–2000	60	645	10.1	6	rat
Hampson 2009 ³⁰	16	60			30	230	14.4	>5	rat
TBSI W64Spec	64	4.8	10	0.8–6000	3	33	0.5	5	rat
Yin 2009 ³¹	32		4.9	1–1000	1	5.6	0.2		rat
Miranda 2010 ³³	32	114?	3.2	0.05–5000	30	163	5.1	33	macaque

References

- Hampson, R. E., Collins, V. & Deadwyler, S. A. A wireless recording system that utilizes Bluetooth technology to transmit neural activity in freely moving animals. *J Neurosci Methods* **182**, 195–204 (2009).
- Yin, M., Lee, S. B. & Ghovanloo, M. In vivo testing of a low noise 32-channel wireless neural recording system. *Conf Proc IEEE Eng Med Biol Soc* **2009**, 1608–1611 (2009).
- Chestek, C. A. et al. HermesC: low-power wireless neural recording system for freely moving primates. *IEEE Trans Neural Syst Rehabil Eng* **17**, 330–338 (2009).
- Miranda, H., Gilja, V., Chestek, C. A., Shenoy, K. V. & Meng, T. H. HermesD: A high-rate long-range wireless transmission system for simultaneous multichannel neural recording applications. *IEEE Transactions on Biomedical Circuits and Systems* **4**, 181–191 (2010).